THE MEANING OF SECONDARY EDUCATION[1]

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The student of American educational institutions finds himself very much confused when he attempts to discover the point at which the typical high school begins, and the point at which this middle school ends. There are many high schools in this country which carry on courses that in other communities are thought of as belonging to the elementary grades, and it is well known that many of our American colleges are in fact high schools in every respect except in name. This overlapping is evident in such details as methods of organization and subject-matter of instruction. Take such a characteristic as departmental instruction. In the high school and upper schools all instruction is departmental, that is, the work of the mathematics department differentiates itself with great clearness from the work of the English department and from that of the Latin department. The tendency to adopt this mode of organization has of late appeared more and more in elementary schools, especially in the upper grades. In defense of this mode of organization in the elementary school, it has been pointed out that departmental classes give greater freedom of adaptation of school work to individual needs. Departmental classes permit students, for example, to go forward in certain lines, even though they may have failed in others. Departmental work also makes it possible for students to elect to some extent those courses which are best adapted to their future work. Again, it is said that the instruction is more efficient because the training of the teacher and the interest of the pupil are more highly specialized. In these and other respects the upper grades of the elementary school are supposed to gain by approaching the type of organization typical of the high school.

On the other side, if we examine the college course, we find that there is great similarity between the work of the Freshman year

[1] Delivered at the Maine State Teachers' Association, October 25, 1912.

and the work of the high school. This is perhaps most strikingly illustrated by reference to the subjects of instruction. There is not an American college in existence which does not offer elementary work in modern languages, elementary work in science, elementary work in history. More and more there is a tendency for the colleges to offer elementary work in classical languages. Greek has been almost entirely carried over to the college. Even the elementary phases of Latin are now being offered in many colleges. It is difficult to determine how far this tendency will extend. Without waiting for future developments, however, we are compelled, even at the present time, to say that the Freshman year of all American colleges is just as much a stage of secondary education as is the work that is carried on in high schools.

In Germany one of the chief marks of distinction between secondary education and higher education is to be found in the fact that the secondary student is put through a required curriculum, while the student in the higher schools, especially the universities, is allowed to elect freely the courses which he wishes to pursue. In this country we have experimented extensively with the required and elective systems. It is perhaps bold to make any statement about what is generally accepted in the matter of elective courses, but there seems to be a tendency to mark off the immature student of the high school and first years of the college from the mature student of the later college years. One may venture the statement that it is characteristic of the high-school period that the student must be carefully supervised in his selection of courses, and must be guided into those courses which form a coherent curriculum. It is certainly the prevailing experience of colleges that the Freshman and Sophomore must also be guided in his selection of courses. The free elective system is successful with advanced students in the Junior and Senior years of the college, but it is certain that the Freshmen and Sophomores are not yet prepared to elect without careful supervision and guidance. In this respect, therefore, it is obvious that the first two years of college and the high school are parts of the same general period of education.

The intimate relation between the high school and the institutions above and below is so vital a fact in American education that

many movements have sprung up in different parts of the country looking toward an extension of the high school in one direction or the other. We find many high schools which induce students to stay on for work after they have graduated. These institutions are developing in the direction of what is now classified as college work. On the other hand, we find that many of the schools which aim to do secondary work as their primary function find it necessary to have a preparatory class for students who come from elementary schools which are inadequately equipped to give a complete training in the so-called common branches.

Perhaps the most significant extension downward of the domain of the secondary school is that which is coming in response to the demand for vocational education in the lower schools. Children who are not sure of going to high school must be allowed to pursue differentiated courses in the upper grades of the elementary school. The boy who is going into the trades and has no thought of high school cannot with equity be required to do the same work that is required of the boy who is going to become a clergyman and looks forward to a college education. Many boys have to make a choice between the trades and professions before they leave the seventh grade. The seventh grade must provide for such boys by adopting a type of organization similar to that now established in the high school.

The facts which have been pointed out thus far show how vague is the present definition of secondary education. They also challenge us to a thoroughgoing consideration of what is to be done in order to direct intelligently the evolution of our American school system.

I am going to venture to make the next part of my paper as concrete as possible, by referring in detail to the schools with which I am best acquainted, namely, the Elementary School and the High School of the University of Chicago. These two schools differ in some respects from the ordinary schools of like grade, but we are prepared to defend the thesis that what we do could be advantageously considered by all elementary and secondary schools. The schools are the laboratories of the Department of Education, and the business of the department is to understand as fully and

immediately as possible the opportunities of economy and co-ordination of organization.

Let me begin by commenting on the problem of organizing the English in the two schools, so as to avoid unnecessary duplication. It was found that the upper grades of the elementary school spent much time in reading some of the classics, and in studying the elements of correct composition. Most of this was repeated in the high school. Thus we had going on under our own roof work so repetitious that a child who went through the two schools repeated in the first year of the high school much that he had done in the elementary school. There is nothing so destructive to a child's interest as the thoughtless repetition in which our schools indulge. We who are older in years and patient in mind would refuse to listen to the same sermons gone over again and again. But we seem to think it our duty to make children go over the same poem or story several times. The conscientious child reads the poem at home. He comes to class and hears some other child read it. The teacher then reads it. The conscientious child now reads it again, in review, and takes an examination on it. He goes on into a higher school and a new teacher takes him in hand and announces with great enthusiasm that now this same poem will be read and studied. "Please read the poem several times at home before coming to class tomorrow!" When tomorrow comes the poem is once more read by someone, as though it had never been read before, etc., etc. One parent said to me not long ago, "My boy is now reading and studying the 'Ancient Mariner' for the third time. He read it in the eighth grade, he read it in high school, and now his class in college is taking it up!" Is it any wonder that we find students more intelligent about the working of our elective system than are we ourselves? Think of three teachers of English managing the destinies of a boy and the interests of the "Ancient Mariner" absolutely ignorant of the sphere of each other's work and influence.

We found in our schools that a little consultation between the English teachers brought out enough of these repetitions so that we were able to eliminate one year of English. We put the children who had done our eighth-grade English directly into second-year high-school English.

We found a similar situation in science. In common with the better elementary schools, ours has introduced a good deal of science work. In the first year of our high school we are giving a general science course. This we believe is also in keeping with the best practices. Yet there is lack of co-ordination here. We encountered some embarrassment in dealing with two types of students who enter our high school. There are those who come to us from schools which have very little nature-study. For such students a general first-year science course seems to have many advantages. For other students, especially those who come from schools teaching much nature-study, this first-year general course is very uninteresting, because it is so repetitious and elementary. What shall be done? The remedy seems simple, but it requires the intelligent co-operation of two schools. Let the elementary school administer much general science, let the high school take up the specialized sciences and give the student more systematic differentiated courses.

A third illustration may be drawn from our experience with language instruction. For a number of years the Elementary School of the University of Chicago has offered to students in the fourth grade and upward the opportunity of electing a modern foreign language. The student may take either French or German. Whichever language he elects, he will pursue this study during the remainder of his elementary-school course. He does not have each day as long a period of study as he will have when he comes later to take up the same subject in the high school. He does not undertake to do the same kind of work. For example, he does not, in the elementary course, emphasize grammatical study. He does however acquire the ability to pronounce the language at a period in life when it is easier for him to take on the pronunciation of a foreign language than it will be when he grows older and more fixed in his methods of pronunciation. We regard the courses in modern language as very desirable in the Elementary School. It was found difficult, however, to take advantage of the work which the children had done in the Elementary School, when these children came to the High School. The instructors in the High-School department did not know exactly what had been done in the

lower grades, and the methods which had been pursued in the lower grades were not identical with those which were used in the High School to train up introductory students. As a result many of the children who had spent four years in the Elementary School in studying modern languages were obliged to begin the work as though it were entirely new on entering the High School. This showed of course that there was no proper correlation between the two institutions. Gradually an arrangement has been worked out which has led to some modifications of the methods of teaching languages in the Elementary School, and to a very large modification in the attitude of the High-School instructor; with the result that the children now get the advantage of the work which they have done in the Elementary School. There has been absolutely no loss or omission in their education, but there has been such a recognition of the good results of the work which they have done in the Elementary School that the High School can begin its work at a higher level. Credit, if one wishes to put it that way, for a year of high-school work, can with all propriety be allowed to these children. They have done the same work that is expected of others who begin the language in the Freshman year of the High School, and they are amply qualified to go on with the higher studies in these same fields.

The problem of dealing with mathematics is somewhat more difficult, and yet it is perfectly clear to all who have been interested in the problem of organizing mathematics in the elementary and high school that a very radical change needs to be made. The elementary school certainly has the right to include in its course a great deal more constructive geometry than has heretofore been common in the elementary course. The elementary school also has a right and duty to include some of the simpler algebraical methods of procedure. The use of the simple equation, the use of the unknown quantity, can readily be taught in the grammar grades, and the ease with which these devices make it possible to solve many problems that heretofore have been solved by cumbersome arithmetical methods justifies the introduction of algebra into the elementary-school course. Still the administrative difficulties of introducing geometry and algebra into the elementary school

are very great. Last year the eighth grade of our Elementary School had progressed far enough in its work in arithmetic so that we felt justified in giving a part of the work which would ordinarily have been given in the first year of the High School.

As a result of all of the adjustments which I have described last year's eighth grade went from the Elementary School into the High School sufficiently advanced in its studies so that it could be classified as well through the first year of high-school work. The present eighth grade will go to the High School with even a larger portion of the first year's work absolved, and it is our expectation that the major part of the present seventh grade will be promoted directly into the first year of the High School. I say that a major portion of the present seventh grade will be so promoted, for it is not the intention of the school to send on children who are not qualified to do secondary work. There may be some members of the class who ought to take a longer period before they are brought to the kind of work which is ordinarily given in the high school.

One further interesting experiment is being made this year. The eighth-grade children are being offered an opportunity to take voluntarily, after the regular hours of school, some Latin work which is given to them without any requirement of home study. They are meeting one of the best Latin instructors that we have in the High School for a period each day, and with this teacher they are studying the elements of Latin.

I need hardly emphasize the importance of effecting economies of the type which have just been described, wherever such economies are possible. The pressure which is felt throughout our whole civilization for economy of time in education, certainly has commanded enough attention in recent years to be worthy of the closest attention on the part of teachers. If we can save a year of the time of elementary pupils, and bring them into the secondary school at a period a year earlier than is customary, we shall have helped to solve the urgent social question which confronts all educators.

I have illustrated my remarks by reference to our schools, but I believe the same general plan is coming in all schools. Elementary-school teachers are convinced from their experience that there is at

some point in the elementary course a waste of time and energy. There is a great deal of undue reviewing in the seventh and the eighth grades. Teachers in the seventh grade review at the end of this year in the hope that their pupils may be better prepared to go on with the work of the eighth grade. At the beginning of the eighth grade there is a long and laborious review of what has been done before, and finally, at the end of the eighth grade, there is a long period of preparation for the work of the high school. All this reviewing is wasteful. There ought to be a continuous review of the work which the children have done in earlier years, by a constant revival in ordinary routine of the principles and information which have been acquired in the earlier years. There ought never to be the necessity of a long period of review, such as is too common in our schools at the present time.

I find support for the doctrine which I have been defending in the fact that such schools as those of Concord and Berlin, New Hampshire, are making an effort to differentiate sharply between the elementary school and the high school at the end of the sixth grade. These experiments exhibit a clear conviction that the seventh and eighth grades as now organized are not satisfactory. Furthermore, in personal conference with many teachers in these grades I find a widespread feeling that the reviewing to which reference was made above is not justified. It may be that the Concord plan is the best one. There are, however, two different issues involved in the matter. First, there is a matter of actual economy of time; the second problem is the problem of better organizing the work. The change in the schools of the University of Chicago cuts out one year by avoiding repetitions. No reorganization will be finally acceptable which does not do as much. It may be advantageous to have this or that form of organization in the seventh grade, but the general school course will hardly be adequate unless it has some form of work corresponding to the present seventh grade. In other words, there is content enough to justify without waste seven years. This content should be more effectively organized, but it is extremely doubtful whether the time should be reduced below seven years. The change in the Chicago school above described is not a change of radical reorganization, it is

strictly a change effecting economy of time. The way is now open for readjustments in detail within the organization. The change which has thus far been made can be described as first of all efficient from the point of view of strict economy.

Thus far I have dealt with the problem of the high school and its extension downward. Let us turn now to the problem of extending the high school upward.

The discussion will, I believe, proceed from this point most clearly if I lay down a definite program of organization and attempt to defend this program. I am sorry not to be able to offer a concrete case where the program has been carried out, as I was able to do in dealing with the relation between high school and elementary school. The program which I wish to advocate is the fusion of the first two years of the college with the high school. The work which is now done in six years, that is, in four years of high school and two of college, can under proper organization be completed in five years. For convenience I shall speak of this five-year school as a secondary school.

It should be noted again that the subject of discussion at this point is economy of time. Assuming that no radical change is desirable in the general course to be followed by a student, there is a possibility of economical organization. The first year was saved between the elementary school and the high school; a second year can be saved between the high school and the college. When the waste in our present system is eliminated then we shall be in a position to work out readjustments of a broad type in the content of the course. The program which is now to be defended is a program of economy of one year between the high school and the college.

The first argument which I wish to present is somewhat indirect. Students who go to college under our present plan are often mentally and socially immature. The shock of readjustment is very great, and many a student loses much time and energy in the radical change in his habits of life and study. Society has recognized this fact and has attempted to make the adjustment as easy as possible for the immature student by keeping him for the first years of his college work as near home as possible. The most striking fact

which has been brought out in recent investigations is that American colleges are local institutions. The colleges of the great universities are local and the small colleges are chiefly justified in their struggle for existence by the fact that they bring the advantages of a complete education to boys and girls who could not go far away to attend college. The defense is valid, because a local institution is likely to save the student from some of the dangers of readjustment. Why not extend the advantages now provided here and there to as wide a range of people as possible? If the local college does a service when it provides that a group shall enjoy under favorable conditions an extension of high-school training, why not make the advantages of such an extension accessible to all children through an enlargement of the local institution best fitted to carry on this work? Strong public high schools ready to do the work of the Freshman and Sophomore years are the right and duty of every community. They exist today in a form which calls for very little enlargement, in all the leading centers of population in this country.

It may be said that the plan which is proposed will only put off the day of readjustment. The student going from the enlarged high school will still be obliged to meet new and exacting conditions in the higher university to which he goes. True, there will have to be a readjustment, but it will be relatively easy because the student will be more mature and more fixed in habits of concentration. Furthermore, the later years of college work are more flexible and the adjustment will be easier because the student who elects his courses with some definite end in view will not have to repeat at the arbitrary demand of the Freshman instructor the English and the science and the history which are now regarded as necessary to complete a general education.

The second argument against our present organization is much more direct. Consider the educational waste and lack of co-ordination which is exhibited every year, when colleges admit students with conditions. A student admitted with conditions is a living evidence that secondary education is to be completed in the college under a system of instruction which is not frankly and fully organized for that purpose. A college which accepts such a student

is saying something like this: "The subject in which you are not prepared is indeed stated in our catalogue to be a logical and necessary preliminary to our higher work, but we are a good deal in doubt about the truth of what is said in our catalogue. If you will consent to take the major risk, and let us remind you from time to time that you are probably unable to do our work, we will accept your tuition and admit you to our classes and undertake from now on to organize your course." It would be most wholesome for college faculties to go into the details of the cases of conditioned students. Sometimes the fact is that the conditioned boy is strong in mind and body. Perhaps he discovered in high school that he has a future. He will be an honored alumnus of any college that knows enough to let him in. Why talk about him as conditioned? Why not say frankly that his training of the secondary or general type is incomplete and frankly provide that he shall take first what he needs, namely, training of a secondary and general type? The trouble now is that we talk as though his secondary training were completed; we let him into the college family, and keep reminding him that his adoption is of doubtful legality and of uncertain wisdom.

Another type of conditioned student is he who is not strong in mind or body. He is let in and is told to make bricks without straw. He is known to be unequipped with the rudiments, and is confused and worn out. He must meet at the same time both the usual requirements of regular work, and also the requirements growing out of his unpassed entrance requirements. His confusion blossoms into mental chaos, and then our educational machine cuts him off. When will colleges realize that an inadequately prepared student, inadequately taken care of in his first year, and ejected with all the pomp and circumstance of a faculty vote, is an evidence of institutional imbecility rather than of student failure?

Third, I wish to suggest in several of the departments of instruction problems which grow out of our present lack of unity of organization. It is a very striking fact that a large number of students fail in high-school mathematics. I have some statistics from schools in the northern part of Illinois which I judge from many indications to be typical of high schools over the whole country,

and these statistics show from 20 to 40 per cent of failures in algebra. The failures in this subject are out of all proportion to the failures in other subjects. Their meaning is perfectly clear. Algebra as taught does not belong where it is now put into the course of study. Yet it is almost impossible to get it moved, because tradition is so strong. Conversely, geometry has become fixed in the latter part of the high-school course. It belongs earlier. It got into its present form and into its present place on the program through its alliance with formal logic. The whole problem of mathematical instruction ought to be restudied with a free right and purpose on the part of those who teach it to move certain parts of this science up into the present college years, and put back part even into the elementary school.

As for language, some comments have already been made on this subject. It is the worst kind of educational folly to put the elements of any language which is to be taught for general purposes into the college course, and administer them from the point of view of philological science. If languages are to be acquired, they ought to be acquired at the very latest during the secondary period. They ought to be taught by people who will concern themselves with the study of proper methods and devices for teaching elementary language. In short, the colleges as now organized ought not to teach elementary languages. American students in Germany find that the whole matter of language instruction in that country is managed differently and more efficiently than we manage it here.

When it comes to the classics, one hesitates to offer any comment lest he should be regarded as intruding upon sacred ground. Greek teachers have nearly succeeded in arranging it so that there is little occasion to speak of that subject outside the Classical Association. Latin teachers are beginning to feel the pressure of the competition of the modern languages. Why doesn't someone who has the temerity to offer advice to these sometime autocrats of the high-school course suggest that Latin ought to begin earlier and ought to be made the key to all classical culture through the grafting on during the third and fourth year of enough Greek to give the ordinary student all that he wants of Greek, namely, an opportunity to know in a very introductory way what the language of

Homer is like? This compromise with the common people is not unlikely to bring a few specialists to the further study of classics as in the good old days. Otherwise the failure of the classicists to apprehend the meaning of secondary education is likely to become a historical monument to the fate of those who do not understand their opportunity.

One might discuss the courses in history and science, showing how these subjects must be adapted to the needs of the non-specializing general student. But the limits of this paper make it advisable to turn at once to the problem of instruction in the practical arts and applied sciences. Vocational education is our great unsolved problem at the present time. There are some who rise up and tell us that we should solve this problem by organizing separate schools. These prophets of division tell us that there are among our people some who are to look forward only to the simpler activities of life. For these there must be some kind of retreat where the sound of the hammer and the loom may alone be heard, where the softer voices of history and science shall be inaudible in the midst of the real activities of industry. These divisionists seem to be in doubt about the date when the laborers are to be counted out and sent to their special training school, but on the whole the date which they set seems to coincide roughly with that of the beginning of secondary education. Is it not a pity that these specialists in industry should deprive some of the boys and girls who are to stay in the conventional high school of their natural right to apply knowledge with their own hands? I make no plea at this moment for the cultural education of the worker; I make a plea rather for the opportunities of application of knowledge for every learner. Let the higher institutions be the homes of that absorbing specialization which is, I believe, necessary for the development of science; but let secondary education be the sphere of general training in the facts of civilization, the facts of science, and no less in the applications of knowledge. I should give another year to the wise men and women who know how to study the needs of adolescent youths and maidens. I should say to the secondary teachers: Begin anew and work out without fear or favor the whole problem of general education. When our high schools

are increasing in attendance at the rate of 100 per cent in a little more than a decade, that fact means that secondary education is a problem in itself. We cannot subordinate this problem to the single problem of advanced special study, either professional or industrial. If secondary education is a sphere of general education, to be organized in terms of its own conditioning requirements, then what is clearer than the conclusion that industry has a rightful place in every curriculum? He is narrow in his view who would specialize the institution because the individual must be trained to specialize. My contention is that the institution should be made comprehensive in order that it may guide the individual with large facilities at its command. In some quarters our higher institutions of learning made the mistake of specializing too highly. We have as a result today the spectacle of state after state trying to devise some machinery which will unite in productive harmony the agricultural college, the engineering school, and the schools of pure science. We have reached a period of rapid expansion of our secondary schools; can we not see broadly enough to organize these great institutions so that they shall comprehend all that belongs within a single scheme of secondary education? I believe we can and shall. The secondary school ought to reach down and take the child who is now wasting time in the eighth grade. It ought to expand so as to give instruction to the immature students who are now working in the first two years of college. It ought to render the whole organization so much more economical than it is now that time shall be saved for the student, while at the same time the course is greatly enriched. This new secondary school will solve many problems which have been waiting to be recognized. For example, children will be taught how to study, not told to go home and find out how to study. Children will be taught the value of books as sources of suggestions for real life. They will learn here that industry is both skill and applied science and that pure science is the first step toward practical life. One could go on mentioning other achievements which are sure to crown this new secondary school.

I dare say there are some who will not share my optimistic enthusiasm. They will say: How can people be expected to take

on all this training? I pointed out above, you will remember, that with proper economy of organization the program can be carried out at most in seven years of elementary schooling and five of secondary. I should advocate if time permitted that vacations ought to be cut down and the school day lengthened. All this could be done if we put in some handwork and outdoor work to break the monotony of the present highly specialized program. We could have one-year courses and two-year courses for students of limited opportunity. The program which I have defended is not a plea for a limited organization, but rather a plea for a study of the whole broad field of secondary education. It is a program intended to overcome the difficulties which arise out of the fact that several different kinds of people are doing little parts of the work, and duplicating each other's efforts very unintelligently, quarreling about interests which are too vital to be left unadjusted, wasting that which is of the most value, namely, human energy and opportunity.